UNITED STATES DEPARTMENT OF COMMERCE
**Patent and Trademark Office**
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|---|---|---|---|
| 09/242,103 | 02/08/99 | ASIUS J | 0198/00047 |

| EXAMINER | |
|---|---|
| KOH, C | |
| ART UNIT | PAPER NUMBER |
| 3738 | 8 |

DATE MAILED: 02/22/01

QM32/0222
POLLOCK VANDE SANDE & AMERNICK
PO BOX 19088
WASHINGTON DC 20036

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/242,103 | Asius et al. |
| **Examiner** | **Group Art Unit** |
| Choon P. Koh | 3738 |

☒ Responsive to communication(s) filed on *Dec 14, 2000* .

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

☒ Claim(s) *1-20* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-20* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *7*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

*--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---*

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1- 4, 6, 10-12 and 16-19 are rejected under 35 U.S.C. 103(a) as obvious over Beisang et al (Aesth. Plast. Surg., 1992) in view of Scopelianos et al (5,599,852).

4. Beisang et al (1992, page 83) teaches injectable implant for human administration consisting of implant microparticles in suspension in a hydrogel as claimed (see page 83).

5. However, Beisang et al does not explicitly teach that their microparticles are bioresorbable or teach the specifics of the implant as variously set forth in claims 2-7 and 10-19.

6. With respect to claims 2, 6 and 16-19, Scopelianos et al teaches the use of poly-ϵ-caprolactones, lactic acid polymers, the glycolic acid polymers, or the lactic co-glycolic acid polymers as microparticles in an injectable implant as variously set forth in claims 2, 6, 16-19 (col. 2, line 53 - col. 3, line 14; col. 4, lines 54-67). Scopelianos et al also teaches the benefit of using such bioresorbable particles in an injectable implant (col. 2, lines 32-43) .

7. With respect to claims 4 and 11-12, even though Scopelianos et al does not teach specific range of diameter of the microparticles as set forth in the claims, Scopelianos et al reference does teach the particle sizes of less than about 500 microns and preferably less than 50 microns, which includes the particles sizes set forth in the claims (col. 7, lines 31-33).

8. In light of the benefits of using bioresorbable particles in injectable polymeric dispersion as taught by Scopelianos et al ('852), it would have been obvious to one having ordinary skill in the art at the time the invention was made to use well known bioresorbable implant particles taught by Scopelianos et al ('852) as the microparticles in a gel as taught by Beisang et al to obtain injectable implants enjoying the beneficial properties associated with the bioresorbable implant.

9. As to the amount of microparticles in the gel as set forth in claims 3 and 10, it is conventional to optimize the concentration of the microparticles for the intended use and it would vary with the viscosity desired and the type of administration employed.

10. Claims 5, 7-9, 13-15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beisang et al (Aesth. Plast. Surg., 1992) in view of Scopelianos et al (5,599,852) as applied to claims 1-4 and further in view of Ron et al (U.S. Patent No. 5,597,897).

11. With respect to claims 5, 7-9, 13-15 and 20, while Beisang et al (Aesth. Plast. Surg., 1992) and Scopelianos et al (5,599,852) teach the invention substantially as claimed, neither reference teaches the gel which includes mainly, as gelling agent specific cellulose material as set forth in claims 8 and 20, the method as set forth in claim 9, specific period during which the polymeric particles are bioabsorbable as set forth in claims 5 and 13-15, or the specific range of a

molecular mass between 70,000 and 175,000 Dalton, an intrinsic viscosity of between 3 and 4 dl/g, the percentage of residual monomer and the percentage of residual solvents as set forth in claim 7.

12. Ron et al (U.S. Patent No. 5,597,897) teaches the use of the lactic acid polymers, the glycolic acid polymers or the lactic co-glycolic acid polymers as the polymeric particle component in microspheres of the type claimed (col. 3, lines 36-58). Ron et al ('897) further teaches that the lactic acid polymer can be employed in its d- or l-form, or as a mixture (col. 3, lines 42-48).

13. With respect to claim 8 and 20, Ron et al teaches the benefits of using a gelling agent such as carboxymethylcellulose (CMC) or hydroxypropylmethylcellulose (HPMC) in the amount of 0,5-20 wt % which overlaps the range of 0.1 to 7.5% as set forth in the claim (col. 9, Example 4).

14. With respect to claim 9, Ron et al ('897) teaches a lyophilized, i.e. freeze-dried, implant product to which is added water for injection as set forth in the claim (col. 9, lines 23-28).

15. With respect to claim 7, Ron et al ('897) teaches the molecular weight of the polymer ranging from about 1,000 to 100,000, when the polymeric particles are formed from a copolymer of lactic acid and glycolic acid and further teaches that the higher the molecular weight the slower the biodegradation (col. 3, lines 54-58).

16. With respect to claims 5, 7 and 13-15, even though Ron et al ('897) does not teach specific period during which the polymeric particles are bioabsorbable or the specific range of a molecular mass between 70,000 and 175,000 Dalton, an intrinsic viscosity of between 3 and 4 dl/g , the percentage of residual monomer and the percentage of residual solvents as set forth in the claim, based on the correlation between the molecular mass and the rate of bioresorbability of the polymers taught by Ron et al ('897), it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the polymers or copolymers based on the molecular mass and use the polymeric particles in a gel as taught by Beisang et al (Aesth. Plast. Surg., 1992) and Scopelianos et al (5,599,852) to obtain an injectable implant having the polymeric microparticles that are bioresorbable within desired period, e.g. within a period of 1 year to 3 years as claimed.

17. Although Ron et al do not characterize their polymer particles in terms of viscosity and the percentage of residual monomer and solvents as set forth in claim 7, viscosity would be an inherent property of the polymers based on its molecular mass and would vary with the molecular weight of the polylactic acid used. Furthermore, because it is desirable to remove from a polymeric product most of residual monomers and solvents to obtain a purest product possible, the percentage of residual monomer and solvents as set forth in the claim would be conventional.

18. Claims 3-4 and 10-12 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Beisang et al (Aesth. Plast. Surg., 1992) in view of Scopelianos et al (5,599,852) as applied to claims 1-2 above, and further in view of any one of Ersek et al (5,258,028) or Wallace et al (EP 0 251 695).

19. With respect to claims 3-4 and 10-12, while Beisang et al (Aesth. Plast. Surg., 1992) and Scopelianos et al (5,599,852) teach the invention substantially as claimed, neither reference teaches specific size of the microspheres or microparticles as set forth in claims 4, 11-12, 15 and 18, or the specific range of concentration of microspheres or microparticles in the gel as set forth in claims 3, 10, 14 and 17.

20. Ersek et al ('028) teaches an injectable implant composition which includes polymer microparticles suspended in a gel where the particles having an average diameter of 80 microns when injected showed no migration from the injection site (col. 8, lines 50-58).

21. Wallace et al ('695) teaches injectable aqueous suspension of biomaterials, wherein the biomaterials are particulate, i.e. particles, and further teaches that the particle size of the biomaterial will depend upon the gauge of the needle that is to be used to inject it into the body and the maximum particle size that can be extruded through such needles depend on various factors, including the particle maximum dimension, particle rigidity, the viscoelastic properties of the suspending fluid (page 3, lines 20-30).

22. It would have been obvious to one having ordinary skill in the art at the time of the invention to optimize the particle size of the microparticles taught by Beisang et al (Aesth. Plast. Surg., 1992) and Scopelianos et al (5,599,852) based on the parameters taught by Wallace et al or Ersek et al to obtain the injectable implant having desired effect when injected at a particular site of implantation. As to the amount of microparticles in the gel, the concentration would depend on desired effect at the site of implantation.

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Costantino et al (1994) teaches various factors that affect biocompatibility of the implantable biomaterials, including particle size (pages 3, 9, 11).

Ersek et al (Aesth. Plast. Surg., 1992) teaches various characteristics desirable in a soft tissue implant, including particle size which should be large enough to prevent migration after implantation and the size small enough to allow implantation by minimally invasive blunt cannula procedure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ms. Choon P. Koh whose telephone number is (703) 305-1232. The examiner can normally be reached on Monday - Thursday from 6:30 AM to 4:00 PM. The examiner can also reached on alternate Friday from 6:30 AM to 3:00 PM .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corrine McDermott, can be reached on (703) 308-2111. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3590 (formal) and (703) 308-2708 (informal) .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

Choon P. Koh
February 16, 2001

CORRINE McDERMOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700